

NAME _____

DATE _____ PERIOD _____



How Does Your Garden Grow?

Using the Scientific Method to Test an Hypothesis

Materials:

- | | |
|--------------------|---------------------|
| 2 beakers or cups | Paper towels |
| 40 radish seeds | 2 plastic bags |
| aspirin tablets | water |
| graduated cylinder | marker for labeling |

Part A.: Form an Hypothesis

It has been said that **adding aspirin to plant seeds will help them grow faster** than seeds not treated with aspirin. You will test this hypothesis by setting up an experiment with radish seeds.

Prepare a hypothesis for the **problem above**. Your hypothesis should be stated as an “if” and “then” statement. **For example:** *If* animals have vitamin C in their diet, *then* they will not develop rickets.

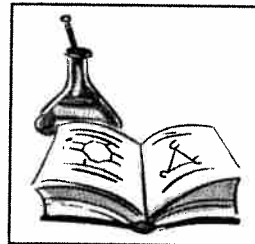
Record your hypothesis below:

Part B.: Testing Your Hypothesis

Follow the steps below to test the radish seeds:

☺ Day 1 (Date: _____)

1. Label a cup with your name and “Water”
2. Count out 20 radish seeds and place in cup
3. Measure 20 mL of water in a graduated cylinder
4. Add the 20 mL of water to the cup with seeds
5. Label a second cup with your name and “Aspirin”
6. Count out another 20 radish seeds and place in a cup
7. Measure 20 mL of water in a graduated cylinder
8. Add the 20 mL of water to the cup with seeds along with 1 aspirin tablet
9. Allow seeds to soak overnight



☺ Day 2 (Date: _____)

1. Pour off water from both cups carefully
2. Place one set of seeds between two paper towels; fold the edges and place in a ziploc bag
3. Place the second set of seeds in another set of paper towels, fold the edges, and place in a ziploc bag
4. Label the bags with either “water” or “aspirin”; check that the bags are **labeled correctly**
5. Allow both bags to remain undisturbed for 2 days.

☺ **Day 4 (Date: _____)**

1. Count the number of seeds that are growing in the bag marked “water”. Those that are growing will have a small root extending from the seed.
2. Record the number of growing seeds in the chart below: **Individual results**
3. Count the number of seeds that are growing in the bag marked “aspirin”. Those that are growing will have a small root extending from the seed.
4. Record the number of growing seeds in the chart below:
5. **GATHER CLASS TOTALS** and record the seeds growing and not growing under “**Class Results**”.

Part C: DATA and OBSERVATIONS

Individual Results

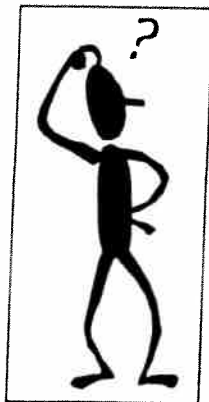
Treatment	Number of Seeds Used	Number of Seeds Growing	Number of Seeds Not Growing
Water			
Water + Aspirin			

Class Results

Treatment	Number of Seeds Used	Number of Seeds Growing	Number of Seeds Not Growing
Water			
Water + Aspirin			

Part D: Examining your Hypothesis:

Considering the results of the experiment, does your hypothesis seem valid, or must it be revised or modified? Explain, using complete sentences:



Part E. Questions and Conclusions:

1. Define **hypothesis**: _____
2. Define **control**: _____
3. Which group was the **control group** in this experiment? _____
4. Which group was the **experimental group** in this experiment? _____
5. What procedures were kept **constant** throughout the experiment?
 - a. _____
 - b. _____
 - c. _____
6. Suggest a reason why it was best to use class totals rather than only your data when drawing conclusions about your hypothesis: _____

7. A hypothesis helps predict new facts. Determine if the following could possibly be predicted based on your corrected hypothesis regarding aspirin and seed growth.

Explain your reasoning for each of the examples below:

- a. Aspirin added to pea seeds will reduce the amount of growth
- b. Aspirin added to soil will help house plants form greener leaves
- c. Aspirin added to corn seeds will increase the amount of growth

Part F: Conclusion:

How does one test an hypothesis? _____

